Fig. 1

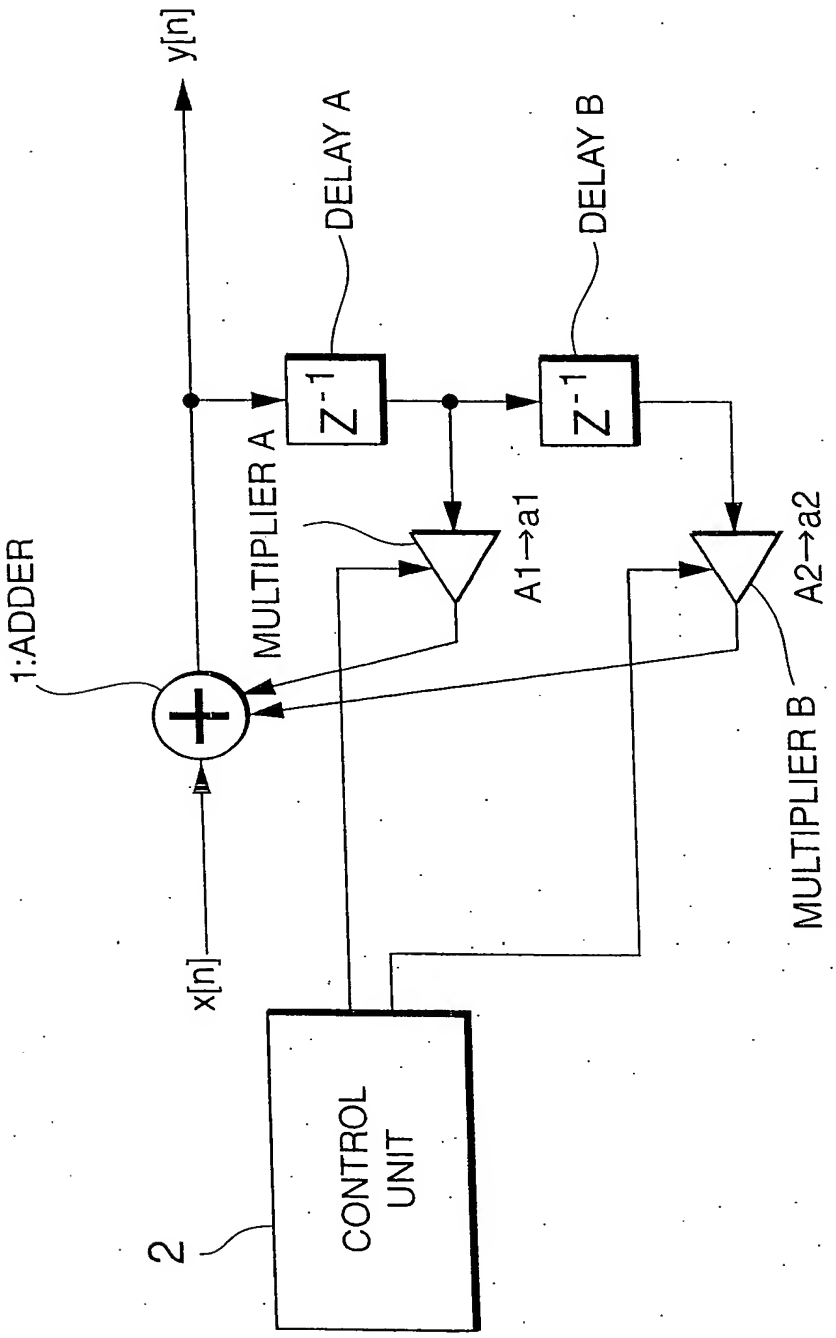

y[n]
DELAY A
DELAY B
Z^{-1}
Z^{-1}
MULTIPLIER A
A1→a1
A2→a2
1:ADDER
MULTIPLIER B
x[n]
CONTROL UNIT
2

Fig.2

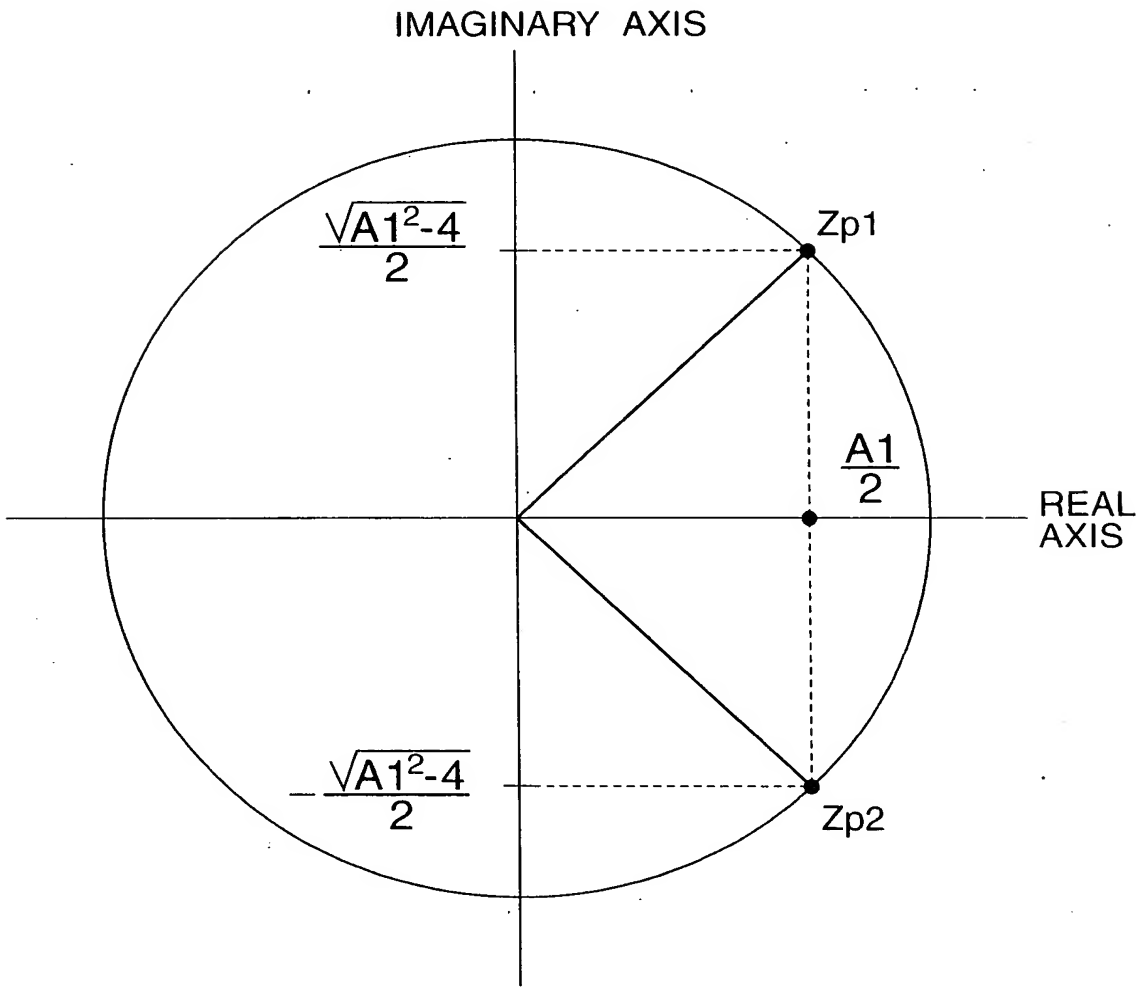

IMAGINARY AXIS
$\frac{\sqrt{A1^2-4}}{2}$
Zp1
$\frac{A1}{2}$
REAL AXIS
$-\frac{\sqrt{A1^2-4}}{2}$
Zp2

Fig.3

Fo (OUTPUT FREQUENCY)	400
Fs (SAMPLING FREQUENCY)	8000
A1=2cos (ωT)	1.902113033
A2=1	1
B0=sin (ωT)	0.309016994

SAMPLE NO.	y[n]=A1*y[n-1]-A2*y[n-2]	y[n-1]	y[n-2]
0	0	0	0
1	0.309016994	0	0
2	0.587785252	0.309016994	0
3	0.809016994	0.587785252	0.309016994
4	0.951056516	0.809016994	0.587785252
5	1	0.951056516	0.809016994
6	0.951056516	1	0.951056516
7	0.809016994	0.951056516	1
8	0.587785252	0.809016994	0.951056516
9	0.309016994	0.587785252	0.809016994
10	-1.88738E-15	0.309016994	0.587785252
11	-0.309016994	-1.88738E-15	0.309016994
12	-0.587785252	-0.309016994	-1.88738E-15
13	-0.809016994	-0.587785252	-0.309016994
14	-0.951056516	-0.809016994	-0.587785252
15	-1	-0.951056516	-0.809016994
16	-0.951056516	-1	-0.951056516
17	-0.809016994	-0.951056516	-1
18	-0.587785252	-0.809016994	-0.951056516
19	-0.309016994	-0.587785252	-0.809016994
20	2.88658E-15	-0.309016994	-0.587785252
21	0.309016994	2.88658E-15	-0.309016994
22	0.587785252	0.309016994	2.88658E-15
23	0.809016994	0.587785252	0.309016994
24	0.951056516	0.809016994	0.587785252
25	1	0.951056516	0.809016994
26	0.951056516	1	0.951056516

Fig.4

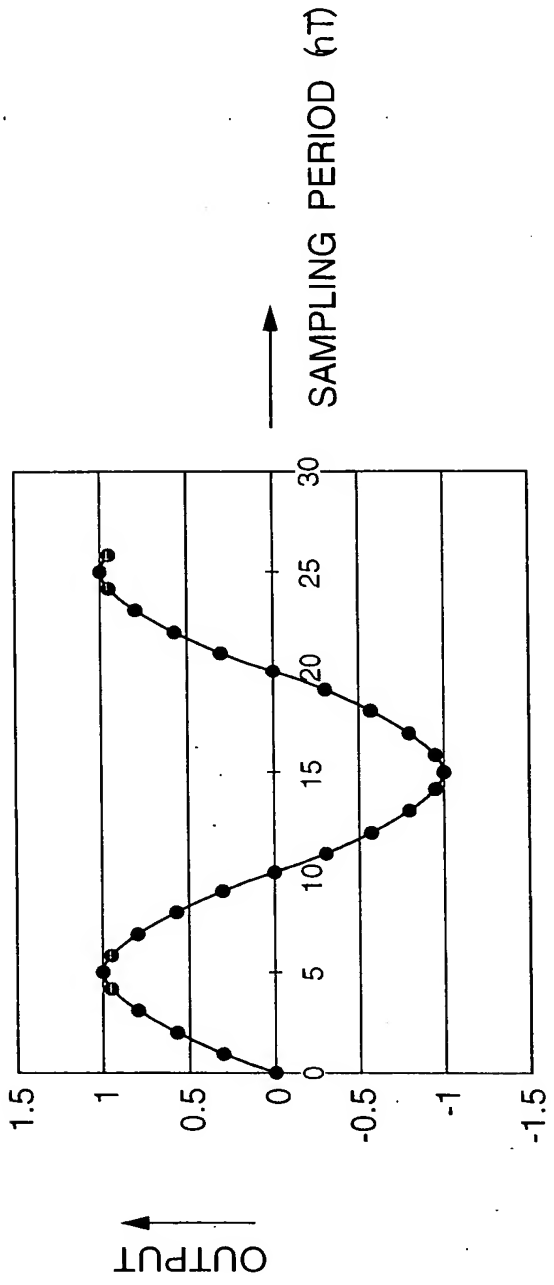


Fig.5

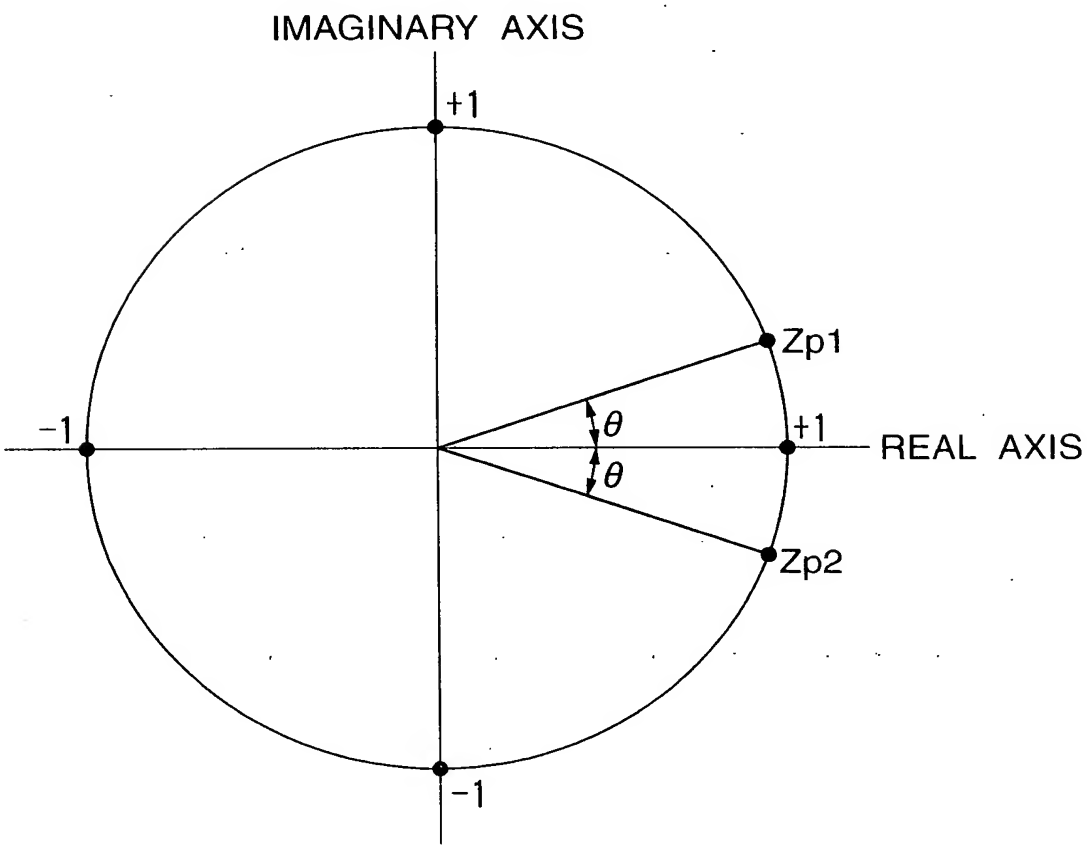


Fig.6

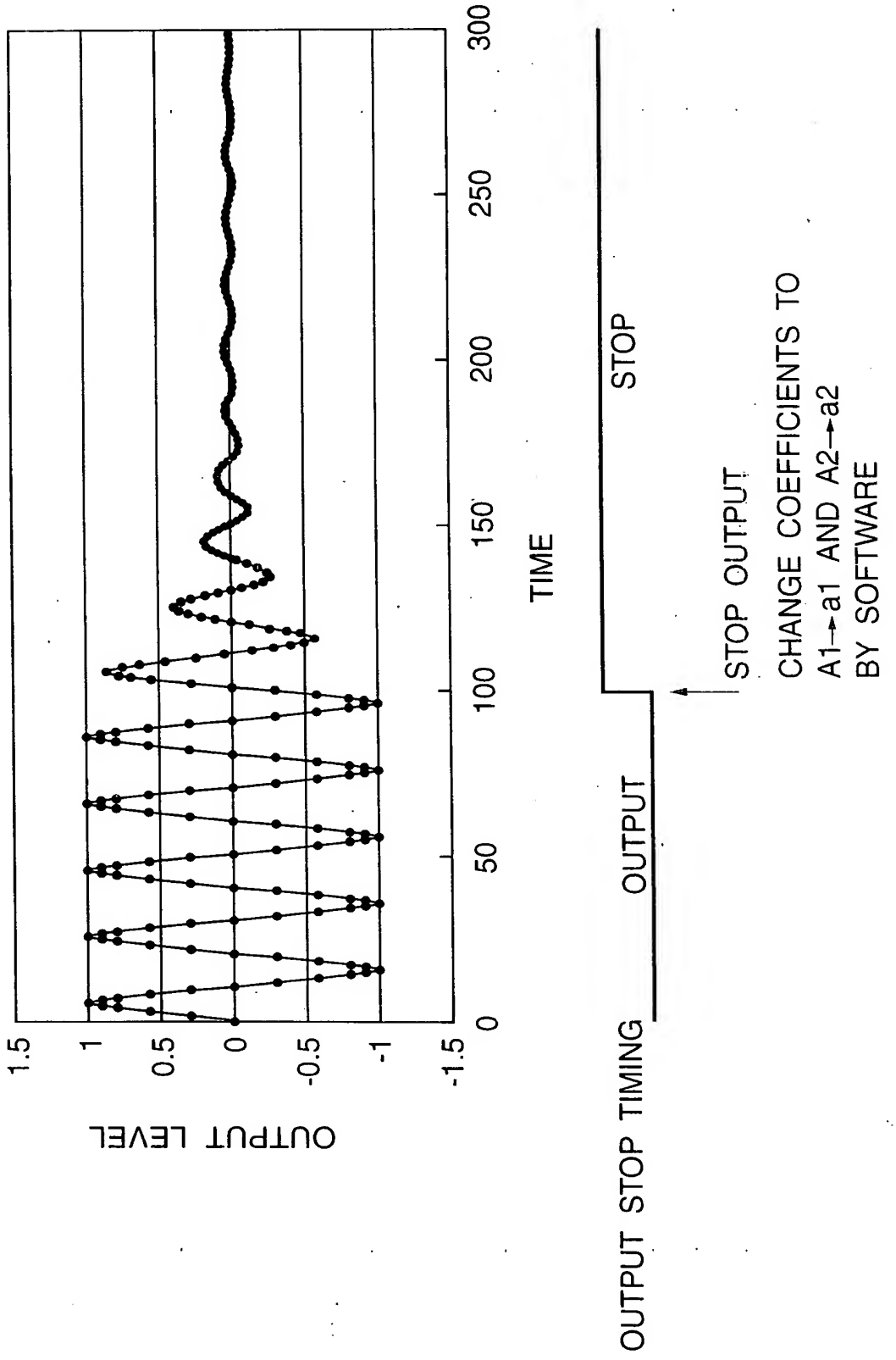

OUTPUT LEVEL
1.5
1
0.5
0
-0.5
-1
-1.5
0
50
100
150
200
250
300
TIME
OUTPUT STOP TIMING
OUTPUT
STOP
STOP OUTPUT
CHANGE COEFFICIENTS TO
A1→a1 AND A2→a2
BY SOFTWARE

Fig.7

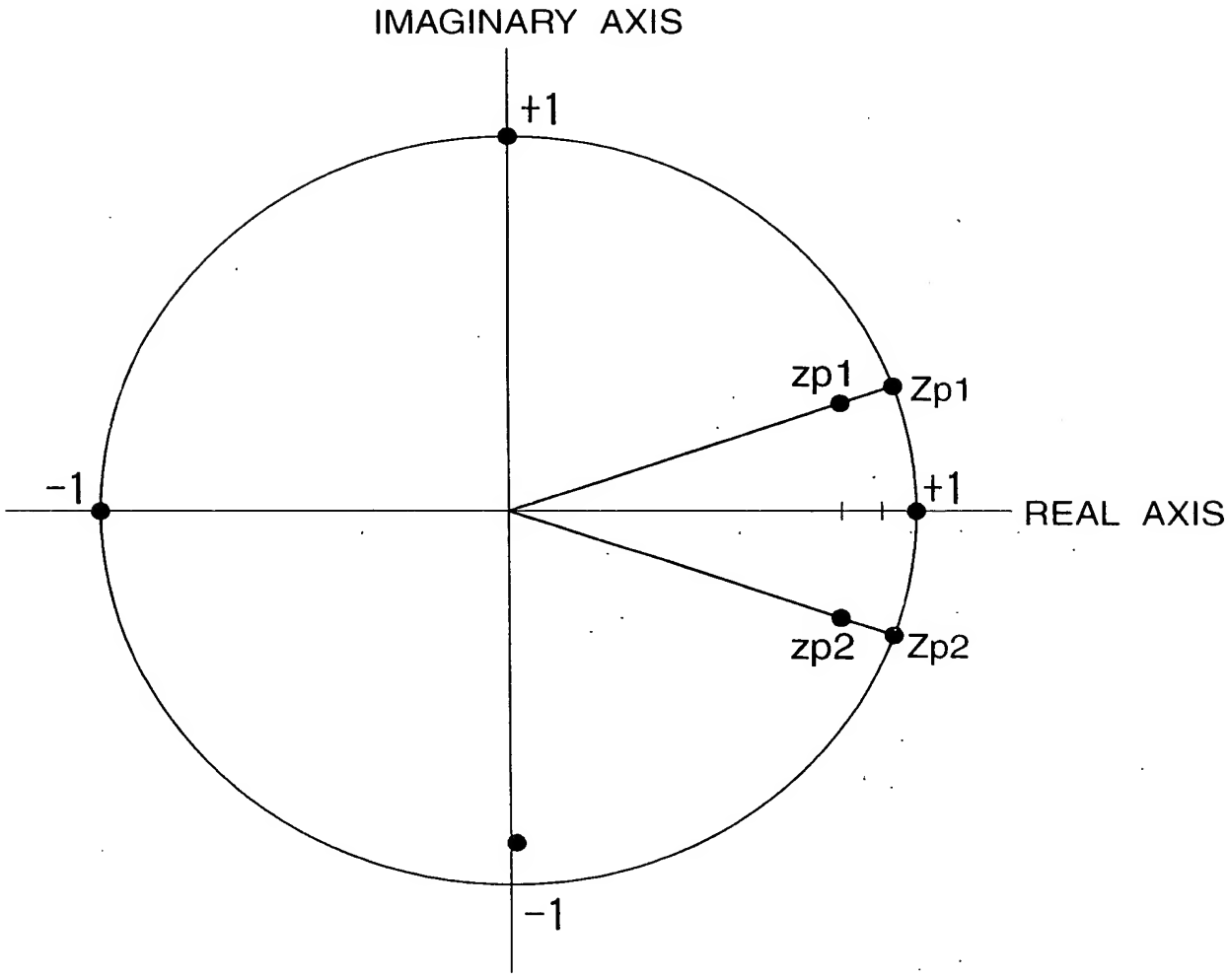


Fig.8

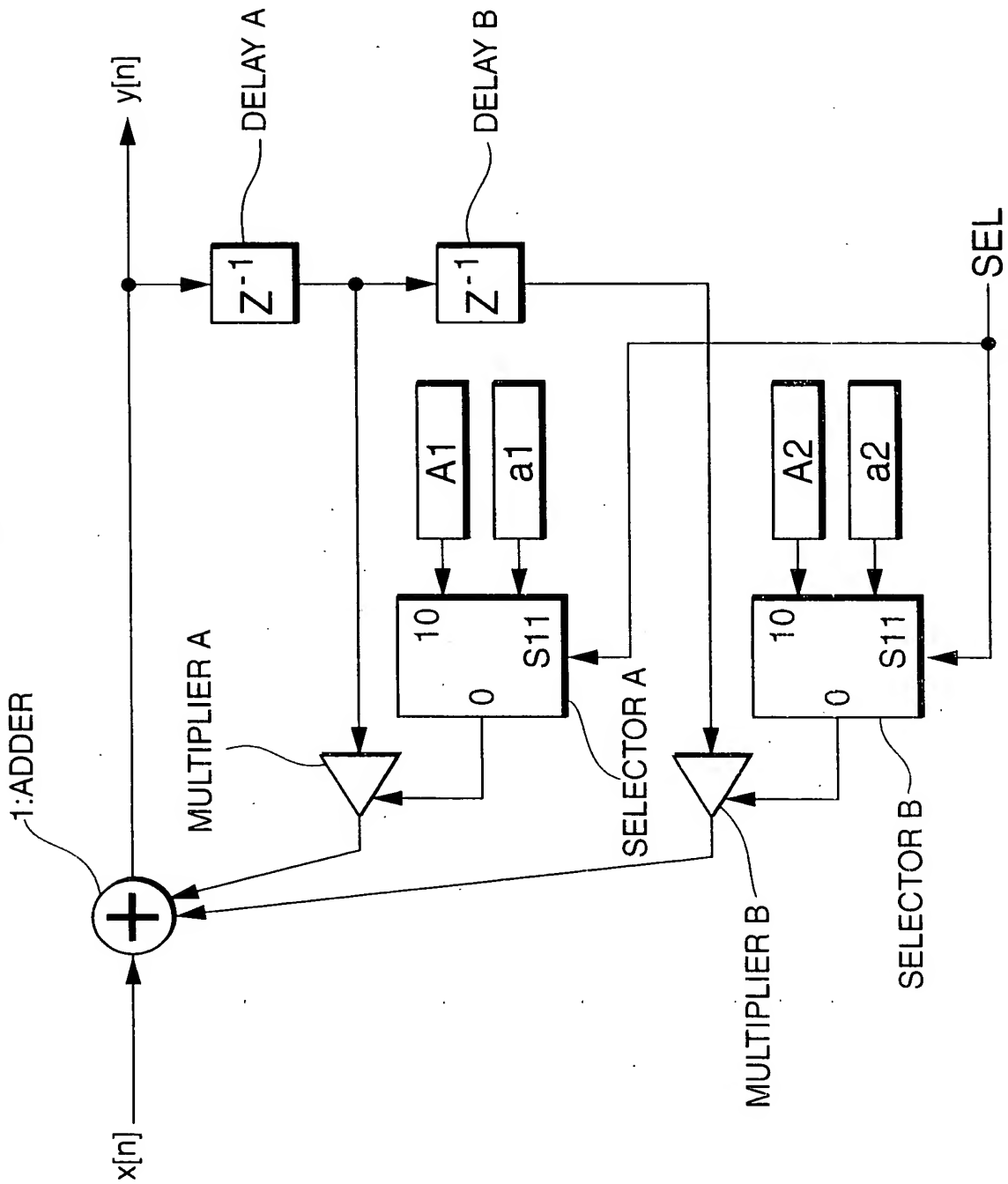
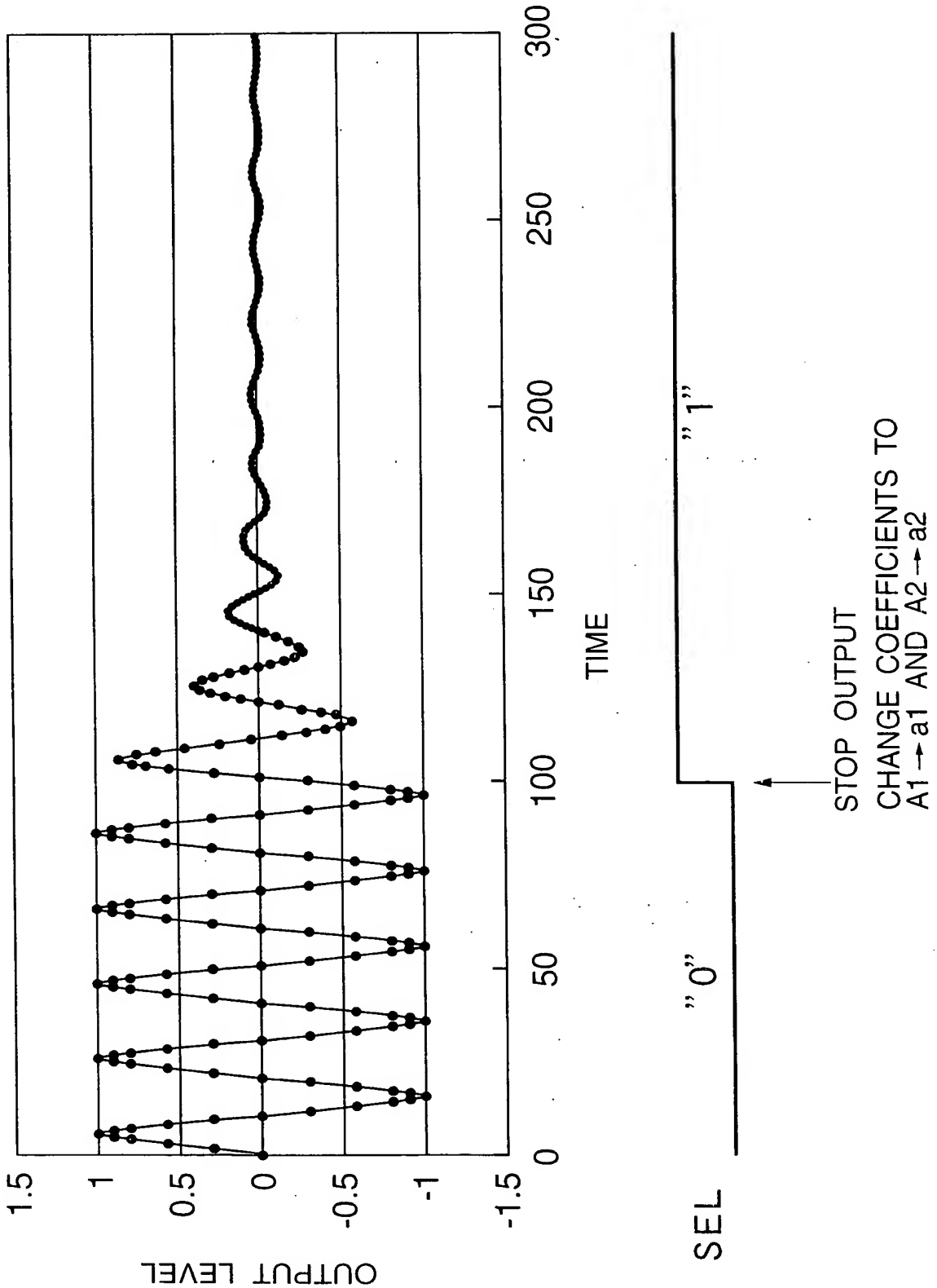

y[n]
DELAY A
DELAY B
SEL
Z^{-1}
Z^{-1}
A1
a1
A2
a2
10
0
S11
10
0
S11
1:ADDER
MULTIPLIER A
SELECTOR A
MULTIPLIER B
SELECTOR B
x[n]

Fig.9


OUTPUT LEVEL
1.5
1
0.5
0
-0.5
-1
-1.5
0
50
100
150
200
250
300
TIME
SEL
"0"
"1"
STOP OUTPUT
CHANGE COEFFICIENTS TO
A1→a1 AND A2→a2